

ANNUAL REPORT

OF THE DIRECTOR

OF THE

MUSEUM OF COMPARATIVE ZOOLOGY

AT HARVARD COLLEGE

1954—1955

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AT HARVARD COLLEGE

BULLETIN (octavo) 1863 — The current volume is Vol. 114.

BREVIORA (octavo) 1952 — No. 51 is current.

MEMOIRS (quarto) 1864-1938 — Publication was terminated with Vol. 55.

JOHNSONIA (quarto) 1941 — A publication of the Department of Mollusks. Vol. 3, no. 35 is current.

OCCASIONAL PAPERS OF THE DEPARTMENT OF MOLLUSKS (octavo) 1945 — Vol. 1, no. 18 is current.

PROCEEDINGS OF THE NEW ENGLAND ZOOLOGICAL CLUB (octavo) 1899-1948 — Published in connection with the Museum. Publication terminated with Vol. 24.

The continuing publications are issued at irregular intervals in numbers which may be purchased separately. Prices and lists may be obtained on application to the Director of the Museum of Comparative Zoology, Cambridge 38, Massachusetts.

Of the Peters "Check List of Birds of the World," volumes 1-3 are out of print; volumes 4 and 6 may be obtained from the Harvard University Press; volumes 5 and 7 are sold by the Museum, and future volumes will be published under Museum auspices.

Museum of Comparative Zoology

To the Dean of the Faculty of Arts and Sciences:

Sir, — I submit herewith the report of the Museum of Comparative Zoology for the academic year 1954–1955.

I report, with some embarrassment, the fact that there have been no outstanding happenings during this year of the Museum's history. I may, however, cite Montesquieu's aphorism: "Happy the people whose annals are blank in history books." Undisturbed by major changes for better or worse, the staff has spent a fruitful year at work — at work in the more routine tasks of care and improvement of our collections, in contributing in an increased degree to the educational work of the University, and in doing its part toward the advance of science along a broad front of research.

During the past year the Museum lost by death three old friends, Mr. Charles Foster Batchelder, on November 7, 1954, Mr. Arthur Cleveland Bent, on December 30, 1954, and Professor Charles Thomas Brues, on July 22, 1955.

Mr. Batchelder and Mr. Bent had been Associates in Ornithology since 1933 and 1931 respectively. Both were benefactors of the Museum as well as distinguished ornithologists. Mr. Batchelder was born in Cambridge on July 20, 1856. He was educated in engineering but natural history occupied all his working life. His connection with the Museum was constant, for from 1899 to 1951 he was Editor of the Proceedings of the New England Zoological Club, which served the same purpose that *Breviora* serves today. The publication ceased upon his resignation, when the valuable back files of the Proceedings were given to the Museum library. In 1933 his collections of 9,494 bird skins and 2,073 skins and skulls of mammals were donated to the Museum.

Mr. Batchelder was the last surviving founder of the American Ornithologists' Union. He served as its president from 1903 to 1908. His interest in the Nuttall Ornithological Club of Cambridge never flagged. As the editor of its memoirs and as the encouraging friend of all young zoologists he will be long remembered.

Mr. Bent was born in Taunton, Massachusetts, on November 25, 1866, and lived there still at the time of his death. He was a businessman who was able also to write 21 volumes of Life Histories of North American Birds during his active 88 years. In 1926 he gave his collection of 12,000 bird specimens to the Museum and in 1931 he was appointed Associate in Ornithology. He was also "collaborator" in the Division of Birds of the United States National Museum. For his contributions to ornithology he received the John Burroughs Medal, the Daniel Giraud Elliot and Brewster Medals. He served as president of the American Ornithologists' Union in 1936 and 1937.

Professor Brues, a distinguished entomologist, was born in Wheeling, West Virginia, on June 20, 1879. Becoming interested in insects during his high school years, he attended the University of Texas to study entomology under the late W. M. Wheeler. After completing his education in 1902, he served for short terms at Columbia University, in the United States Department of Agriculture, and at the Milwaukee Public Museum. Coming to Harvard in 1909, he was advanced through the various faculty grades and was Professor of Entomology from 1935 until his retirement in 1946. Throughout his career he was closely affiliated with the Museum, serving as Associate Curator of Insects from 1929 to 1943, then as Honorary Curator of Hymenoptera and, subsequent to his retirement, as Honorary Curator of Parasitic Hymenoptera. Although much of his research was of a taxonomic nature, he was broadly interested in all aspects of entomology and, indeed, in all biological phenomena. His publications were numerous; several appeared in book form, notably the "Clas-

sification of Insects" first written with A. L. Melander and recently published by the Museum in revised form, with F. M. Carpenter as a third author.

STAFF

Mr. Bryan Patterson, Curator of Fossil Mammals in the Chicago Natural History Museum, has been appointed Alexander Agassiz Professor of Vertebrate Paleontology as of July 1, 1955. We welcome a distinguished student of fossil mammals, whose broad interests in evolutionary and geological problems should make him a stimulating associate not only for the Museum staff but also for those in related University departments.

During recent years Mr. Schevill's research interests have centered on the living cetaceans, rather than in paleontology, and in consequence his title has been changed, as of July 1, 1955, to the more appropriate one of Research Associate in Zoology.

Dr. Turner, who has served devotedly and brilliantly as assistant and research worker in the department of mollusks, has been promoted to Research Associate in Malacology as of July 1, 1955.

As usual a considerable number of courses were given in the biology and geology departments by members of the Museum staff. Courses in geology included Mr. Stetson's course in submarine geology, Dr. Whittington's introductory paleontology, Dr. Kummel's courses in sedimentary petrology, Mesozoic-Cenozoic stratigraphy and elementary historical geology and the writer's course in vertebrate paleontology. In biology, Dr. Carpenter gave his course on the biology of insects as well as serving as chairman of the biology department. Dr. Lyman conducted his course on the biology of mammals, and the writer and Dr. Williams presented the customary courses in comparative anatomy and evolution; Dr. Mayr offered for the first time a course in systematics and evolution, and Drs.

Clench and Turner lectured in the invertebrate zoology course. As in recent years a gratifyingly large number of the graduate students in the biology and geology departments were engaged in research and advanced study with our staff members, including well over a third of all students in animal biology and a quarter of all geology students.

Dr. Mayr was elected to the International Committee on Zoological Nomenclature.

RESEARCH

As ever, a very considerable number of research projects were pursued during the year by staff members.

In the field of mammalogy, Miss Lawrence and Mr. Schevill have completed a paper on the functional anatomy of the cetacean nose and made considerable progress in a study of the myology of the throat and larynx in delphinids. Dr. Lyman has continued work on the effect of cold in hibernation and on mammalian tissues. The seasonal deposition of fat in hibernators, the effect of various environmental and nutritional factors, and the causative factors of changes in the fragility of red blood cells are among the topics currently considered in his hibernation studies. In the taxonomic field he has reviewed the geographic distribution of the northern bog lemming (*Synaptomys*).

Dr. Mayr has in progress various studies on animal species from the evolutionary viewpoint and among specific topics has studied the genus *Cerion*, and reviewed the systematics of several families for the "Check-List of Birds of the World." Mr. Greenway worked on a field guide to the birds of Okinawa and on problems of nomenclature related to the "Check-List." Dr. Paynter continued his studies on the avifauna of Mexico.

Mr. Loveridge and Dr. Williams have nearly completed a comprehensive systematic work on the cryptodiran turtles of Africa; the former has studied and reported upon a herpeto-

logical collection from the Ivory Coast and the latter has studied the "spectacles" covering the eyes of the lizard *Anolis*. Dr. Bigelow is at work on two papers on sharks. Mr. Schroeder has been engaged in study of the bottom-living elasmobranchs collected along the Atlantic Slope between Nova Scotia and Virginia in 1952-1953.

In the field of echinoderms, Dr. Deichmann is working on the holothurians of the Discovery, Banzare and other Antarctic expeditions, and on the aspidochirotes of the Panama region, and is at work on the plexaurids of the West Indies, with a report on those of the Bermuda waters near completion.

In the department of mollusks, Dr. Clench has finished a catalogue of the Cerionidae, a family of West Indian land mollusks, and has done further work on the land mollusks of Rennell Island (Solomon Islands) collected by the Galathea expedition, and on the land mollusks of the Bahamas. Together with Dr. Turner, studies were continued on the western Atlantic mollusk fauna and, in conjunction with the University of Florida, studies on the Jim Woodruff Dam Survey at Chattahoochee, Florida — the latter necessitating a broad survey of the entire region of northern Florida and southern Alabama to Georgia. Dr. Turner completed her work on the Pholadiidae, including a special study of the collections of the Allan Hancock Foundation. She also finished a study of the Atlantis Scaphopoda, mainly forms collected in Cuban waters in 1938 and 1939. Republication of the work of C. B. Adams continues, including preparation of a publication on his work in Panama which will figure his many species for the first time. Dr. Bequaert is well along on the preparation of a catalogue of the marine mollusks of West Africa. Dr. Champion, in addition to giving the department valuable editorial aid, has worked further on our North American land shell collection.

In entomology, Dr. Carpenter was engaged in preparation of a text for the insect section of the forthcoming "Treatise on Invertebrate Paleontology" and continued studies on Permian insects from Oklahoma and Kansas, and of Asiatic and Neo-

tropical species of Coniopterygidae as well as on a revision of Nearctic Coniopterygidae. Dr. Bequaert made further progress on the revision of the American Hippoboscidae; the second and third (final) installments of the work should be published within the year. He has also worked on Palearctic and African members of the family. Dr. Darlington has nearly completed his book on zoogeography. Apart from purely scientific work, he has been much interested in museum methods and techniques and is a member of a group of entomological museum curators who met in Washington in May and plan to meet periodically for consideration of common problems. Dr. Brown has continued his taxonomic studies of ants, Professor Chickering his investigations on Panamanian spiders, and Dr. Chapin work on coccinellids, particularly Colombian species. Professor W. T. M. Forbes, who has retired from Cornell University, is a welcome new adjunct to our local entomological group, and is continuing his taxonomic work on Lepidoptera here. During the summer of 1954 Dr. A. S. Obraztsov spent two months here, working partly for the Museum and partly on his own research on small moths. Professor H. W. Levi arrived in Cambridge in June to spend the coming summer in arachnological work.

In vertebrate paleontology, Dr. Edinger has made further studies in various aspects of paleoneurology and related topics. Research topics on which work was completed during the year include a study of Paleocene condylarths, one of brain evolution in whales, a paper on the size of the parietal foramen in various reptiles, a discussion of the achievements and tasks of paleoneurology and a study of archaic fossil vertebrates which confirms the hypothesis, based on Recent forms, that many primitive forms possessed paired pineal eyes rather than a single median eye. Dr. Williams has studied the skull of a Miocene turtle of the genus *Podocnemis*, and of a Pleistocene form from Java and has in preparation a general study of the evolution of vertebrae. Dr. Baird finished work on archosaur footprints from Milford, New Jersey, and continued work on the

Carboniferous amphibians and reptiles of Linton. Mr. van Frank has studied and described a new salamandrid from the Oligocene of Oregon. I finished and published a rather thorough revision of "The Vertebrate Body," prepared for publication a shorter version of this work, and made a study of the appendicular skeleton of the embolomeroous amphibian *Archeria*. In London this spring Professor Watson and I completed a classification of the Therapsida which was begun during his residence here as an Alexander Agassiz Professor.

In addition to time spent by Miss Wright and Dr. Edinger, Mr. van Frank has worked full time on the long-term project of a bibliography of European vertebrate paleontology and Dr. Edinger and I plan to track down some of the more elusive references in Europe this coming summer.

In invertebrate paleontology, Dr. Whittington completed work on additional graptolites from Oklahoma and on type specimens of odontopleurid trilobites. Work on silicified odontopleurid trilobites is well advanced. Dr. Kummel has finished manuscripts on post-Triassic nautiloids and on geological and paleontological bibliographies, as well as a contribution to the Geological Society of America Triassic correlation chart. He has finished his work on ammonites for the invertebrate "Treatise," and both he and Dr. Whittington are well advanced on further contributions to the "Treatise."

Mr. Stetson made investigations of shoreline changes under contract with the Office of Naval Research, Geography Branch, and presented at an oceanographic conference held in Halifax a paper on marine transportation, based on investigation of submarine sand waves in Vineyard and Nantucket Sounds.

COLLECTIONS

Advances have been made during the year in improving the condition of the Museum's collections and at least modest additions to them have been made by the various departments.

In the mammal department a suitable sealed room has been built for a dermestid colony; this should prove a protection to the other collections in the Museum as well as facilitating the preparation of skeletal material. Additions to the collections include almost 200 specimens collected by Dr. Paynter in Chiapas, Mexico, several tropical bats given by Dr. D. R. Griffin and a babirussa skull from the late Professor Brues. We are indebted to Dr. Ralph S. Palmer for the generous gift of a collection of 700 specimens of North American mammals, mainly study skins and associated skulls.

In the bird department the construction of new cases allowed expansion of the appropriate portions of the collections; Dr. Paynter rearranged the families Parulidae and Coerebidae and relabelled the synoptic mounted collection.

About 500 reptiles and 100 amphibians were added to the collections during the year; approximately half resulted from the Mexican expedition of Dr. Paynter, which provided some items previously unrepresented. A second major gift, and a welcome one, was that of Gold Coast reptiles and amphibians, including a rare adder, from Father M. C. Lesage. Mr. L. D. E. F. Vesey-FitzGerald generously donated a considerable number of African reptiles including specimens of a rare worm-like snake (genus *Leptotyphlops*). Exchanges were received from a number of American and foreign museums. Some 29 loans were made to investigators from 17 different institutions, and our collections were utilized by a number of visiting herpetologists.

In the fish department Mrs. Dick completed the re-cataloguing, started many years ago, of our earlier collections, and some 790 lots of fishes forming the "catch" of a Harvard-Havana expedition of 1938-1939 were also catalogued. Of new material may be noted: 30 lots from the Woods Hole Oceanographic Institution resulting from an "Atlantis" cruise in July, 1954; from the U. S. Fish and Wildlife Service, 10 lots of elasmobranchs obtained by the "Oregon" in the Gulf of Mexico and 12 lots by the "Delaware" in the North Atlantic;

shark specimens from the University Zoological Museum of Copenhagen and the Canterbury Museum of New Zealand.

The largest single accession of the year in the mollusk department was that of 500 lots of freshwater shells collected by department members in north Florida. Colonel John K. Howard donated some 319 lots of marine shells collected on the Australian Barrier Reef. Dr. Kummel, while engaged last summer in geological work in Peru, secured a fine collection of land and freshwater shells in the Ucayali River area. Dr. and Mrs. Davis Schmidt collected for us during their winter trips to Florida and have been particularly helpful in sending live material. Through the courtesy of Mr. Fred Ziesenheune of the Allan Hancock Foundation we have received valuable specimens of holothurians and California gorgonians.

In the entomology department two new cases were built last year, and the receipt of 1000 new drawers to fill them has allowed the beginning of extensive rearrangement of parts of the collections, particularly the Hymenoptera. Two series of specimens received during the year have been outstanding. One is a collection of ants made by Dr. E. O. Wilson in New Caledonia and New Guinea during his recent visit to these areas. This forms an extremely valuable addition to what was already an outstanding collection of ants of the world. The second is the collection of Carabidae of Dr. Eduard Knirsch of Vienna, acquired by purchase; apart from many other items of interest it contains a fine lot of European cave beetles. In the interest of inter-museum cooperation and efficiency the main part of our collections of beetle larvae has been transferred to the National Museum; for similar reasons our Lepidoptera larvae were transferred to Yale University last year.

Large collections of trilobites, brachiopods and other invertebrate fossils were obtained by Dr. Whittington from Nevada, New Mexico and Quebec, and Dr. Kummel collected numerous fossil invertebrates during his Peruvian trip.

EXPEDITIONS AND TRAVEL

Dr. Paynter spent the summer in the state of Chiapas, Mexico. While his main objective was a study of the bird life of this poorly known region, he also collected (as noted above) valuable materials in other Museum fields. Through the cooperation of the Woods Hole Oceanographic Institution, Mr. Schroeder cruised on the "Atlantis" during July 1954, collecting along the Atlantic shelf and slope of New England, and in August Mr. Stetson took part in a sounding survey of the channel between Georges Bank and the Nova Scotia shelf on the same vessel.

In August and September 1954 Drs. Clench, Turner and McMichael resumed work on the Gulf Coast in cooperation with the University of Florida, collecting and studying mollusks of the Apalachicola and neighboring river systems. Dr. Deichmann spent much of the winter at the Allan Hancock Foundation in Los Angeles studying echinoderms collected by the "Velero" expeditions.

In the field of entomology, Dr. Carpenter went this spring to Black Mountain to study the life history and evolution of the scorpion fly *Brachypanospa carolinensis*. Dr. Chickering collected spiders during the summer of 1954 in Panama and in Jamaica, where he received very helpful cooperation from Dr. C. B. Lewis. Dr. Brown and Dr. E. O. Wilson went on short collecting trips to eastern regions, in part supported by a grant from the Tozier Fund.

In the autumn of 1954 Dr. Wilson left for an extended trip to Australia, the East Indies and Ceylon under the auspices of the Museum and the Society of Fellows, with study and collection of ants as the objective. The trip had not been completed at the time of this report, but as noted above very valuable collections have already been received from him.

During the winter Mr. and Mrs. Olsen again collected at the Thomas Farm locality in Florida; Dr. Robert Bader of the

University of Florida cooperated actively in the work. The new caretaker's house, mentioned in the last report, has been erected, as a joint enterprise of the Museum and the University of Florida. It is planned to place on it a plaque in memory of the late Dr. Thomas Barbour, to whose interest the purchase and development of the site is due. For the first time in a decade the usual month's work in the Texas redbeds was omitted, due to my departure for Europe. Much of the summer of 1954 was spent by Dr. Whittington in Nevada and New Mexico where, in collaboration with U. S. National Museum workers, invertebrate fossil collections were made in a variety of Paleozoic formations. Dr. Whittington also made a short trip to the Ordovician areas of northern Vermont and Quebec. Dr. Kummel spent four months in geological work in Peru.

As usual, members of the staff took part in a variety of symposia and conferences, in this country and abroad as well. Dr. Mayr spent the summer of 1954 in Europe, visiting various universities, museums and marine stations as well as participating in an international ornithological congress. Dr. Lyman took part in a symposium on comparative endocrinology held at Liverpool. Dr. Edinger and I went abroad this spring with participation in a conference on vertebrate paleontology at the Sorbonne as a primary objective, and were still abroad at the conclusion of the time covered by this report. Dr. Edinger visited various museums in search of paleoneurological specimens. I spent a month in residence in Cambridge, England, giving a number of lectures in course as well as the first of a series of annual lectures planned in honor of the late Dr. Hans Gadow. I also lectured at the University of London, Oxford, Trinity College (Dublin) and the London Zoological Society and studied Carboniferous amphibians in Cambridge, London, Newcastle, Edinburgh and Dublin.

LIBRARY

During the year the library, under Miss Mackenzie and her efficient staff, has made steady progress in a variety of fields. Most notable is the increase in our current serial list. Somewhat over 2000 publications are currently received. It is fortunate that of this list some 1370 serials from 653 institutions are received by exchange for our own publications rather than by purchase. A number of additions have been made in the biological field, but the main effort during the past two years has been to fill at least a part of the gaps in the geological area — an area in which the Harvard library system is notably weak. Prior to 1953 the M.C.Z. library had but 32 geological exchanges; the total is now 131. Geological Survey publications (the largest and most important element in geological literature) are currently received from 37 states (all the states which issue such publications) and 51 foreign countries, and progress is being made in the difficult task of filling in back files of these journals.

In the Widener basement were to be found some 2200 geological books and a variety of periodicals which did little there except accumulate dust and occupy valuable shelf space and are, as far as they are not duplicates, appropriate to the Museum's interest. By agreement with Mr. Metcalf this material is in process of being transferred to the M.C.Z. Non-duplicate material will be retained; duplicates will be disposed of and any proceeds used for the purchase of new geologic literature.

The establishment of the botanical libraries in a building adjacent to the Biological Laboratories and the Museum has made it possible better to coordinate the activities of the various biological libraries, and a committee has been established, under the auspices of the Biological Council, for this purpose. Its current activities include a survey of all serial holdings, with the double aim of filling gaps in our current receipts and of eliminating as many as possible of the considerable number of duplications known to exist.

During the year the serious overcrowding of the main catalogue was relieved by the purchase of nine new cases. The librarian reports a net increase in completed volumes of 2476 and an increase in pamphlets of about 300, bringing the library totals to 108,039 volumes and 118,515 pamphlets. Some 2476 volumes were catalogued and 1525 bound or repaired. As one of the major centers for zoological literature in the country, there was, as always, a considerable demand for books on interlibrary loan, requiring a great amount of the librarians' time.

The Museum is proud of its library, of its value to the biologists and geologists at Harvard and to those of many outside institutions. The pride is, however, costly. As I have noted previously, library expenditures consume more than a quarter of our entire endowment income. The Museum pays nearly half the cost of all library work and purchases for the entire biological group; most of the remainder is borne by the botanical institutions and the Faculty of Arts and Sciences contributes but 10% of the total. A comparable situation exists in geology.

PUBLICATIONS

During the year there were published under Miss Wright's editorship 1325 pages of Bulletin material, included in volumes 111, 112 and 113, and 13 numbers of Breviora totaling about 125 pages. Although, because of financial limitations, it is in general necessary to confine publication to staff members or to workers on our specimens, it is occasionally possible to publish other material of value for which no other outlet is available. At a meeting of the Paleontological Society in 1953 a distinguished panel of workers in invertebrate paleontology discussed the current status of their field. The Museum is gratified at making a distinct contribution to the progress of invertebrate paleontology in publishing (to the extent of some 226 pages) the papers presented at this symposium.

The mollusk department has published one number each of *Johnsonia* (96 pages) and *Occasional Papers* (24 pages).

From the estate of the late George Wetmore Colles of Ro-sharon, Texas, we have received a fund of approximately \$15,000, the income to be used for publication by the Museum of papers on evolution. Mr. Colles was a practising engineer, but had a life-long interest in biological and evolutionary problems. The fund is to be administered by a committee of which the late Professor Brues, Dr. Carpenter and the writer were the original members. Mr. Colles was especially interested in the inheritance of acquired characters, but other evolutionary problems may be included if the committee so desires. The committee, on consideration, feels that the fund would be more useful if the area were so expanded, and has voted to this effect.

ACKNOWLEDGMENTS

Again this year the Museum has benefited from the volunteer work of people who, in their spare time, perform curatorial tasks of value. We are particularly indebted to Herbert Athearn, Arthur Clarke, Richard Johnson, Mrs. Marie Merrihew and Edward Sosson.

In addition to gifts mentioned earlier in this report, our thanks are extended to the following for donations of specimens.

Birds: C. H. Blake, W. H. Drury, R. S. Palmer, W. H. Phelps, P. C. Reed.

Fishes: C. L. Biden, J. A. Garrick, S. Springer, B. Wallace, R. C. Wilson.

Entomology: C. M. de Biezanko, T. Borgmeier, W. F. Buren, T. Cekalovic K., H. P. Chandler, K. Christiansen, E. Coher, A. C. Cole, R. E. Crabill, H. Demarz, H. R. Dodge, R. R. Dreisbach, W. T. M. Forbes, Mrs. T. Gidaspow, R. Guppy, M. H. Hatch, H. Hoogstraal, P. D. Hurd, Jr., A. Jedlicka, D. E. Johnson, P. B. Kannoewski, W. W. Kempf, J. Klapperich, C. B. Lewis, C. H. Lindroth, J. Mateu, F. A.

McDermott, I. M. Moore, R. Mouchamps, P. S. Nathan, W. L. Nutting, L. E. Peña, F. Plaumann, J. A. G. Rehn, A. Robert, M. W. Sanderson, G. E. Shewell, M. R. Smith, P. J. Spangler, S. L. Straneo, I. B. Tarshis, S. Uéno, Mrs. P. Vaurie, R. B. Willey.

Invertebrate Fossils: British Museum (Natural History), Creole Petroleum Corporation, Paleontological Institute (Uppsala).

Marine Invertebrates: H. Baker, M. Gordon, J. V. Rittenhouse, E. F. Swan.

Reptiles and Amphibians: P. K. Anderson, R. H. Backus, B. H. Banta, R. W. Barney, K. Bonham, W. L. Brown, O. G. S. Davis, W. T. Davisson, H. Field, S. E. Fulton, C. J. P. Ionides, R. W. Jackson, C. Junge, A. P. Kirk, Jr., J. M. Legler, R. D. Mackay, J. I. Menzies, G. Nelson, W. J. Rangeley, J. Rivero, J. W. Schieffelin, A. Schwartz, K. R. Slater, Mrs. J. D. Sornborger, L. Wijffels, E. O. Wilson.

ALFRED S. ROMER
Director

MUSEUM OF COMPARATIVE ZOOLOGY

FACULTY, 1955-1956

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ALFRED SHERWOOD ROMER, PH.D., S.D. (hon.).

GEORGE CHEEVER SHATTUCK, M.D., A.M. (hon.).

GEORGE BERNAYS WISLOCKI, M.D., S.D. (hon.).

STAFF, 1955-1956

ALFRED SHERWOOD ROMER, PH.D., S.D. (hon.), Director, Alexander Agassiz Professor of Zoology, and Curator of Vertebrate Paleontology.

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FRANK MORTON CARPENTER, S.D., Alexander Agassiz Professor of Zoology, and Curator of Fossil Insects.

ERNST MAYR, PH.D., Alexander Agassiz Professor of Zoology, and Professor of Zoology.

BRYAN PATTERSON, Alexander Agassiz Professor of Vertebrate Paleontology, and Professor of Vertebrate Paleontology.

MARLAND PRATT BILLINGS, PH.D., Curator of the Geological Museum.

*CHARLES THOMAS BRUES, S.M., Honorary Curator of Parasitic Hymenoptera.

* Died July 22, 1955.

WILLIAM JAMES CLENCH, PH.D., S.D. (hon.), Curator of Mollusks.
PHILIP JACKSON DARLINGTON, JR., PH.D., Fall Curator of Coleoptera,
and Curator of Recent Insects.

ELISABETH DEICHMANN, PH.D., Curator of Marine Invertebrates,
and Alexander Agassiz Fellow in Oceanography and Zool-
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TILLY EDINGER, DR.PHIL.NAT., S.D. (hon.), Research Paleontologist.

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ERNEST EDWARD WILLIAMS, PH.D., Research Associate in Vertebrate
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RAYMOND ANDREW PAYNTER, JR., PH.D., Assistant Curator of Birds.

BENJAMIN SHREVE, Research Assistant.

NELDA EMELYN WRIGHT, M.A., Research Assistant, and Editor of
Publications.

* Died December 3, 1955.

- MERRILL EDWIN CHAMPION, M.D., M.P.H., Associate in Mollusks.
EDWARD ALBERT CHAPIN, PH.D., Associate in Entomology.
JAMES WITTENMEYER CHAPMAN, SC.D., Associate in Entomology.
ARTHUR MERTON CHICKERING, PH.D., Associate in Arachnology.
HAROLD JEFFERSON COOLIDGE, JR., S.B., Associate in Mammalogy.
WILLIAM CAMERON FORBES, A.B., LL.D., Associate to Collect Specimens in Natural History.
RICHARD WINSLOW FOSTER, A.B., Associate in Mollusks.
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PUBLICATIONS FOR THE YEAR 1954-1955

The following have been printed under Museum auspices during the year from July 1, 1954 to June 30, 1955.

Breviora

No. 34. A review of the *coxalis* group of the ant genus *Stictoponera* Mayr. By William L. Brown, Jr. 10 pp. July 20, 1954.

No. 35. New or redescribed pelomedusid skulls from the Tertiary of Africa and Asia (Testudines, Pelomedusidae). 1. *Dacquemys paleomorpha*, new genus, new species from the Lower Oligocene of the Fayum, Egypt. By Ernest E. Williams. 8 pp., 1 pl. July 28, 1954.

No. 36. Present knowledge of the snake *Elachistodon westermanni* Reinhardt. By Carl Gans and Ernest E. Williams. 17 pp., 4 figs. August 6, 1954.

No. 37. On the evolution of an oriental earthworm species, *Pheretima anomala* Michaelsen 1907. By G. E. Gates. 8 pp. August 18, 1954.

No. 38. *Onnia* (Trilobita) from Venezuela. By H. B. Whittington. 5 pp., 1 pl. November 28, 1954.

No. 39. New or redescribed pelomedusid skulls from the Tertiary of Africa and Asia (Testudines, Pelomedusidae). 2. A podocnemide skull from the Miocene of Moghara, Egypt. By Ernest Williams. 8 pp., 2 pls. November 24, 1954.

No. 40. Some mollusks from the continental slope of north-eastern North America. By Arthur A. Clarke, Jr. 11 pp. November 29, 1954.

- No. 41. Comments on the classification of rodents. By Albert E. Wood. 9 pp. December 17, 1954.
- No. 42. A new salamander of the genus *Parvimolge* from Mexico. By George B. Rabb. 9 pp. February 28, 1955.
- No. 43. Speed-induced skin folds in the bottle-nosed porpoise, *Tursiops truncatus*. By Frank S. Essapian. 4 pp., 9 pls. April 7, 1955.
- No. 44. A new *Murex* from Matanzas, Cuba. By William J. Clench. 2 pp., 1 pl. April 8, 1955.
- No. 45. *Palaeotaricha oligocenica*, new genus and species, an Oligocene salamander from Oregon. By Richard van Frank. 12 pp., 3 pls. June 13, 1955.
- No. 46. Cave-fossil vertebrates from Camaguey, Cuba. By Karl F. Koopman and Rodolfo Ruibal. 8 pp. June 24, 1955.

Bulletin

Vol. 111

- No. 9. On *Bolosaurus* and the origin and classification of reptiles. By D. M. S. Watson. 154 pp., 1 pl. August, 1954.
- No. 10. Distribution of the Foraminifera in the northeastern Gulf of Mexico. By Frances L. Parker. 137 pp., 13 pls. August, 1954.

Vol. 112

- No. 1. The ant genus *Strumigenys* Fred. Smith in the Ethiopian and Malagasy regions. By William L. Brown, Jr. 34 pp. August, 1954.
- No. 2. Deep water elasmobranchs and chimaeroids from the northwestern Atlantic slope. By Henry B. Bigelow and William C. Schroeder. 53 pp. September, 1954.
- No. 3. Status of invertebrate paleontology, 1953. By Bernhard Kummel, Editor. 229 pp. October, 1954.
- No. 4. Revision of the chrysomelid subfamily Aulacoscelinae. By F. Monrós. 41 pp., 79 figs. November, 1954.

No. 5. The comparative biology of reproduction in the wood-boring isopod crustacean *Limnoria*. By Robert J. Menzies. 27 pp. December, 1954.

No. 6. The genus *Eustala* (Araneae, Argiopidae) in Central America. By Arthur M. Chickering. 129 pp. March, 1955.

Vol. 113

No. 1. A monographic revision of the ant genus *Lasius*. By Edward O. Wilson. 200 pp., 2 pls. March, 1955.

No. 2. Occurrence off the middle and north Atlantic United States of the offshore hake *Merluccius albidus* (Mitchill) 1818, and of the blue whiting *Gadus* (*Micromesistius*) *poutassou* (Risso) 1826. By Henry B. Bigelow and William C. Schroeder. 23 pp., 3 figs. April, 1955.

No. 3. Notes on several species of the earthworm genus *Diplocardia* Garman 1888. By G. E. Gates. 32 pp., 1 pl. April, 1955.

No. 4. A study of LeConte's species of the chrysomelid genus *Graphops* with descriptions of some new species. By Doris H. Blake. 40 pp., 6 pls. May, 1955.

No. 5. The Permian reptile *Araeoscelis* restudied. By Peter Paul Vaughn. 164 pp., 2 pls. June, 1955.

No. 6. A revision of the Australian ant genus *Notoncus* Emery, with notes on the other genera of Melophorini. By William L. Brown, Jr. 25 pp. June, 1955.

No. 7. The fossil salamanders of the family Sirenidae. By Coleman J. Goin and Walter Auffenberg. 19 pp. August, 1955.

Vol. 83 (reissued)

A checklist of African mammals. By Glover M. Allen. 763 pp. February, 1939. (Lithoprinted.)

Johnsonia

Vol. 3

No. 34. The family Pholadidae in the Western Atlantic and the Eastern Pacific. Part II. Martesiinae, Jouannetiinae and Xylophaginae. By Ruth D. Turner. 96 pp., 58 pls. March 29, 1955.

Occasional Papers on Mollusks

Vol. 1

- No. 18. Introduction, Review Number and Index. 24 pp.,
2 pls. August 14, 1954.

Psyche

Vol. 61

- No. 1. The taxonomic identity of *Melitaea* (*Athaliaeformia*) *mayi* Gunder (Lepidoptera, Nymphalidae). By N. W. Gillham. Pp. 16-19, 1 pl.
- No. 2. The Indo-Australian species of the ant genus *Strumigenys* Fr. Smith: *S. chapmani* new species. By W. L. Brown, Jr. Pp. 68-73, 1 fig.
- No. 3. Nathan Banks, a biographic sketch and list of publications. By F. M. Carpenter and P. J. Darlington, Jr. Pp. 81-110, 1 pl.
- No. 4. The beetle genus *Paralimulodes* Bruch in North America, with notes on morphology and behavior (Coleoptera: Limulodidae). By E. O. Wilson, T. Eisner, and B. D. Valentine. Pp. 154-161, 2 pls., 1 fig.
- The type of *Hesperia horus* Edwards (Lepidoptera: Hesperidae). By N. W. Gillham. P. 162, 1 fig.

Vol. 62

- No. 1. Species of the *Amata* (*Syntomis*) *pfeifferae* group (Lepidoptera: Ctenuchidae). By N. S. Obraztsov. Pp. 29-34, 1 fig.
- Brephidium barbouri* Clench a synonym of *Brephidium exilis isophthalma* (Herrich-Schaffer) (Lepidoptera: Lycaenidae). By N. W. Gillham. P. 34.
- An Eocene *Bittacus* (Mecoptera). By F. M. Carpenter. Pp. 39-41, 2 figs.
- An odonate fossil wing from the Oligocene of Oregon. By Lt. Col. F. C. Fraser, I.M.S., Retd. Pp. 42-44, 1 fig.

No. 2. The rediscovery of *Veromessor lobognathus* (Andrews) (Hymenoptera: Formicidae). By R. E. Gregg. Pp. 45-52.

Redescription of *Spiloconis picticornis* Banks (Neuroptera: Coniopterygidae). By F. M. Carpenter. Pp. 69-74, 1 pl.

PUBLICATIONS BY THE MUSEUM STAFF

Baird, D.

Palaeontology: Vertebrate. Britannica Book of the Year, p. 595, 1954.

Bequaert, J. C.

The Hippoboscidae or louse-flies of mammals and birds. Part II. Taxonomy, evolution and revision of American genera and species. *Entomologica Americana*, 34:1-232, 1954.

Bigelow, H. B.

Fishes of the western North Atlantic. Sawfishes, guitar-fishes, skates, rays and chimaeroids. *Mem. Sears Found. Mar. Res.*, No. 1, Pt. 2, xv + 588 pp., 127 figs., 1953. (With W. C. Schroeder.)

Deep water elasmobranchs and chimaeroids from the north-western Atlantic slope. *Bull. Mus. Comp. Zool.*, 112:37-87, 7 figs., 1954. (With W. C. Schroeder.)

Occurrence off the middle and north Atlantic United States of the offshore hake *Merluccius albidus* (Mitchill) 1818, and of the blue whiting *Gadus* (*Micromesistius*) *poutassou* (Risso) 1826. *Bull. Mus. Comp. Zool.*, 113:205-226, 3 figs., 1955. (With W. C. Schroeder.)

Brown, W. L., Jr.

A review of the *coxalis* group of the ant genus *Stictoponera* Mayr. *Breviora*, 34:1-10, 1954.

The ant genus *Strumigenys* Fred. Smith in the Ethiopian and Malagasy regions. *Bull. Mus. Comp. Zool.*, 112:1-34, 1 fig., 1954.

Collembola feeding upon nematodes. *Ecology*, 35:421, 1954.

New synonymy of an Australian *Iridomyrmex* (Hymenoptera: Formicidae). *Psyche*, 61:67, 1954.

The Indo-Australian species of the ant genus *Strumigenys* Fr. Smith: *S. chapmani* new species. *Psyche*, 61:68-73, 1 fig., 1954.

The neotropical species of the ant genus *Strumigenys* Fr. Smith: group of *saliens* Mayr. *Jour. N. Y. Ent. Soc.*, 62: 55-62, 1954.

Points of view. The case against the trinomen. *Syst. Zool.*, 3:174-176, 1954. (With E. O. Wilson.)

Distribution of Australian entomological type specimens. *Australian Jour. Sci.*, 17:105-106. (With P. J. Darlington, Jr.)

The ant *Leptothorax muscorum* (Nylander) in North America. *Ent. News*, 66:43-50, 1955.

Forelifidis M. R. Smith a synonym (Hymenoptera: Formicidae). *Ent. News*, 66:68, 1955.

A revision of the Australian ant genus *Notoncus* Emery, with notes on the other genera of Melophorini. *Bull. Mus. Comp. Zool.*, 113:471-494, 1955.

Burnett, F. L.

Blue crab as starvation food of oiled American eiders. *Auk*, 71:315-316, 1954. (With D. E. Snyder.)

Carpenter, F. M.

The geological history and evolution of insects. *Smithsonian Report for 1953*:339-350, 1954.

Nathan Banks, a biographic sketch and list of publications. *Psyche*, 61:81-110, 1954. (With P. J. Darlington, Jr.)

An Eocene *Bittacus* (Mecoptera). *Psyche*, 62:39-41, figs., 1955.

Redescription of *Spiloconis picticornis* Banks (Neuroptera: Coniopterygidae). *Psyche*, 62:69-74, figs., 1955.

Chapin, E. A.

A review. Check list of the genera and species of Mallophaga by G. H. E. Hopkins and Theresa Clay. *Quart. Rev. Biol.*, 29:169-170, 1954.

A review. The Trichoptera (Caddis-Flies) of Australia and New Zealand by M. E. Mosely and D. E. Kimmins. *Quart. Rev. Biol.*, 29:171, 1954.

A review. Australian termites by F. N. Ratcliffe, F. J. Gay, and T. Greaves. *Quart. Rev. Biol.*, 29:171, 1954.

A review. Classification of insects by C. T. Brues, A. L. Melander, and F. M. Carpenter. *Quart. Rev. Biol.*, 29:376, 1954.

Chickering, A. M.

The genus *Eustala* (Araneae, Argiopidae) in Central America. *Bull. Mus. Comp. Zool.*, 112:391-518, 1955.

Spider hunting in Panama. *Bios*, 26:69-74, 1955.

Clench, W. J.

Mesodon thyroideus (Say) in Florida. *Nautilus*, 68:23-24, 1954.

The occurrence of clines in molluscan populations. *Syst. Zool.*, 3:122-125, 1954.

A review. American sea shells by R. T. Abbott. *Natural History*, 63:293, 1954.

Chattahoochee survey. Annual Report for 1954, Amer. Mal. Un., p. 3, 1955.

A freshwater mollusk survey of North Florida rivers. *Nautilus*, 68:95-98, 1955.

The Unionidae of B. H. and S. H. Wright. *Nautilus*, 68:104, 1955.

Melania cancellata Say. *Nautilus*, 68:107, 1955.

A new *Murex* from Matanzas, Cuba. *Breviora*, 44:1-3, pl. 1, 1955.

Setaepoma, a new genus in the Synderidae from the Solomon Islands. *Nautilus*, 68:134, 1955.

Land shell collecting. In: How to collect shells. A publication of the American Malacological Union, pp. 59-60. [Reprinted from the Annual Report American Malacological Union for 1941.]

Darlington, P. J., Jr.

Nathan Banks, a biographic sketch and list of publications. *Psyche*, 61:81-110, 1954. (With F. M. Carpenter.)

Distribution of Australian entomological type specimens. *Australian Jour. Sci.*, 17:105-106, 1954. (With W. L. Brown.)

Deichmann, E.

The holothurians of the Gulf of Mexico. *In: Gulf of Mexico, its origin, waters and marine life.* Fish. Bull. Fish and Wildlife Service, 55:381-410, figs. 66-68, 1954.

Edinger, T.

The foramen ovale. *Evolution*, 8:389-404, 1954. (With D. B. Kitts.)

Hearing and smell in cetacean history. *Monatsschr. Psych. Neurol.*, 129:37-58, 1955.

Frank, R. van

Palaeotaricha oligocenica, new genus and species, an Oligocene salamander from Oregon. *Breviora*, 45:1-12, 3 pls., 1955.

Greenway, J. C., Jr.

Natural history notes and observations. *In: Howland Island, its birds and rats, as observed by a certain Mr. Stetson in 1854, by L. Howland.* *Pac. Sci.*, 9:104-106, 1955.

A review. Annual cycle, environment and evolution in the Hawaiian Honey Creepers (Aves: Drepaniidae) by Paul H. Baldwin. *Bird Banding*, 25:122-123, 1954.

Griscom, L.

Historical developments of sight records. *Chat*, 18:58-61, 1954.

The changing seasons. A summary of the spring migration. *Aud. Field Notes*, 8:296-297, 1954.

The changing seasons. A summary of the nesting season. *Aud. Field Notes*, 8:332-333, 1954.

Report of the Amer. Ornithol. Union Bird Protection Committee. *Auk*, 72:110-112, 1954.

A review. Life histories of Central American birds, by Alexander H. Skutch. *Bull. Mass. Audubon Soc.*, 39:141-142, 1955.

Philosophy of waterfowl abundance. *Trans. N. Amer. Wildlife Conf.*, 19:110-113, 1955.

The changing seasons. A summary of the fall migration. *Aud. Field Notes*, 9:4-7, with 3 maps, 1955.

The changing seasons. A summary of the winter season. *Aud. Field Notes*, 9:240-241, 1955.

The Yellow-billed Cuckoo flight of 1954. *Bull. Mass. Aud. Soc.*, 39:151-156, 1955.

Kummel, B.

Mollusca, Cephalopoda. *In*: Status of invertebrate paleontology, 1953. *Bull. Mus. Comp. Zool.*, 112:181-192, figs., 1954.

Experiments on relative streamlining of coiled cephalopod shells. *Jour. Paleont.*, 29:159-170, 5 figs., 1955. (With R. M. Lloyd.)

Loveridge, A.

New frogs of the genera *Hyperolius* and *Arthroleptis*. *Ann. Natal Mus.*, 13:95-99, 1954.

Suppression under the Plenary Powers of the specific name "*caesius*" Cloquet, 1818, as published in the combination "*Coluber caesius*," for the purpose of validating the specific name "*irregularis*" Leach, 1819, as published in the combination "*Coluber irregularis*" (Class Reptilia, Order Squamata). *Opin. Declar. Internat. Com. Zool. Nomen.*, 9:299-308, 1955.

Introduction to "Leopards in the Night" by Guy Muldoon (Appleton-Century-Crofts Inc., New York), 1955.

On Amphibia Salientia from the Ivory Coast collected by Dr. V. Aellen. *Revue Suisse Zool.*, 62:129-150, figs. 1-2, 1955.

Lyman, C. P.

- Activity, food consumption and hoarding in hibernators. Jour. Mamm., 35:545-552, 1954.
- The effect of low environmental temperature on the composition of depot fat in relation to hibernation. Jour. Physiol., 126:235-247, 1954. (With D. W. Fawcett.)
- Body temperature, thyroid and adrenal cortex of hamsters during cold exposure and hibernation, with comparisons to rats. Endocrinology, 55:300-315, 1954. (With H. W. Deane.)
- Subcortical electrical activity in the golden hamster during arousal from hibernation. EEG. Clin. Neurophysiol., 6:403-408, 1954. (With P. O. Chatfield.)
- An unusual structure in the floor of the fourth ventricle of the golden hamster (*Mesocricetus auratus*). J. Comp. Neur., 101:225-236, 1954. (With P. O. Chatfield.)
- Physiology of hibernation in mammals. Physiol. Reviews, 35:403-425, 1955. (With P. O. Chatfield.)

Mayr, E.

- Notes on the birds of northern Melanesia. Passeres. Amer. Mus. Novitates, 1707:1-46, 1955.
- Comments on some recent studies of song bird phylogeny. Wilson Bull., 67:33-44, 1955.

Paynter, R. A., Jr.

- Interrelations between clutch-size, brood-size, prefledgling survival, and weight in Kent Island Tree Swallows. Parts II and III. Bird Banding, 25:102-110, 136-148, 1954.
- Birds in the upper Arctic. Auk, 72:79-80, 1955.
- The ornithogeography of the Yucatán Peninsula. Bull. Peabody Mus. Nat. Hist., Yale Univ., 9:1-347, 2 maps, 4 plates, 1955.
- Additions to the ornithogeography of the Yucatán Peninsula. Postilla, Yale Univ., 22:1-4, 1955.

Romer, A. S.

The vertebrate body. Philadelphia. 644 pp., 1955. (Second edition.)

Schevill, W. E.

Sight records of the gray grampus, *Grampus griseus* (Cuvier). Jour. Mamm., 35:123-124, 1954.

Schroeder, W. C.

Fishes of the western North Atlantic. Sawfishes, guitarfishes, skates, rays and chimaeroids. Mem. Sears Found. Mar. Res., No. 1, Pt. 2, xv + 588 pp., 127 figs., 1953. (With H. B. Bigelow.)

Deep water elasmobranchs and chimaeroids from the northwestern Atlantic slope. Bull. Mus. Comp. Zool., 112:37-87, 7 figs., 1954. (With H. B. Bigelow.)

Occurrence off the middle and north Atlantic United States of the offshore hake *Merluccius albidus* (Mitchill) 1818, and of the blue whiting *Gadus (Micromesistius) poutassou* (Risso) 1826. Bull. Mus. Comp. Zool., 113:205-226, 3 figs., 1955. (With H. B. Bigelow.)

Shrock, R. R.

A review. Silicified Middle Ordovician trilobites, by H. B. Whittington and W. R. Evitt. Quarterly Booklist, 10: 260-261, 1954.

Stetson, H. C.

The continental shelf. Scientific American, 192:82-86, 1955.
Beach studies in the Cape Cod area, July, 1954-December, 1954. Status Report, Geog. Branch, Office of Naval Research, pp. 1-21, 1955. (With Elizabeth E. Baldwin.)

Turner, R. D.

The genus *Melongena*. American Malacological Union, Annual Report for 1954, p. 10, 1955.

The family Pholadidae in the western Atlantic and the eastern Pacific. Part II, Matresiiinae, Jouannetiinae and Xylophaginae. Johnsonia, 3:65-160, pls. 35-93, 1955.

Collecting shipworms. *In*: How to collect shells. A publication of the American Malacological Union, pp. 32-35. [Reprinted from Special Publication no. 19, Limnological Society of America, 1947.]

White, T. E.

Preliminary analysis of the fossil vertebrates of the Canyon Ferry Reservoir area. *Proc. U.S. Nat. Mus.*, 103:395-438, 1954.

Whittington, H. B.

A new Ordovician graptolite from Oklahoma. *Jour. Paleont.*, 28:613-621, 1 pl., 13 figs., 1954.

Arthropoda: Trilobita. *In*: Status of invertebrate paleontology, 1953. *Bull. Mus. Comp. Zool.*, 112:193-200, 2 figs., 1954.

Onnia (Trilobita) from Venezuela. *Breviora*, 38:1-5, 1 pl., 1954.

Geological reconnaissance between Loilem and Ke-Hsi Mansam, southern Shan States. *Rec. Geol. Surv. India*, 78:203-216, 1 pl., 1954.

Evidence for the Permian age of the Moulmein System. *Rec. Geol. Surv. India*, 78:193-194, 1954.

The fauna of the Derfel limestone of the Arenig District, North Wales. *Phil. Trans. Roy. Soc. London, Ser. B*, 238:397-430, 3 pls., figs., 1955. (With Alwyn Williams.)

Williams, E. E.

Present knowledge of the snake *Elachistodon westermanni* Reinhardt. *Breviora*, 36:1-17, 4 figs., 1954. (With Carl Gans.)

New or redescribed pelomedusid skulls from the Tertiary of Africa and Asia (Testudines, Pelomedusidae). 1. *Dacquemys paleomorpha*, new genus, new species from the Lower Oligocene of the Fayum, Egypt. *Breviora*, 35:1-8, 1 pl., 1954.

New or redescribed pelomedusid skulls from the Tertiary of Africa and Asia (Testudines, Pelomedusidae). 2. A podocnemide skull from the Miocene of Moghara, Egypt. *Breviora*, 39:1-8, 2 pls., 1954.

